

WHAT IS CLAIMED IS

1. A data-reproduction apparatus for reproducing digital data based on a reproduction signal that is read from a recording medium, the data-reproduction apparatus comprising:

a conversion device of sampling said reproduction signal according to a sampling clock and converting the said reproduction signal to a sample-value series;

a phase-correction device of correcting said sample-value series according to a phase-error signal;

a phase-detection device of detecting the phase-error signal of said sample-value series whose phase has been corrected; and

a clock generation device of generating said sampling clock for synchronizing said sample-value series according to said phase-error signal.

2. The data-reproduction apparatus according to claim 1, wherein said phase-correction device is provided with a transversal filter having a plurality of taps.

3. The data-reproduction apparatus according to claim 2, wherein said transversal filter uses a transfer function that is symmetrical around the center position for performing the filtering operation, and sets tap coefficients according to said phase-error signal.

4. The data-reproduction apparatus according to claim 2, wherein said transversal filter uses a transfer function that is symmetrical around

the center position for performing the filtering operation, and selectively switches the connection of said plurality of taps according to said phase-error signal.

5 5. The data-reproduction apparatus according to claim 2, wherein said transversal filter selectively sets taps coefficients at tap positions that are symmetrical around a center tap according to the polarity of the phase-error signal.

10 6. The data-reproduction apparatus according to claim 2, wherein there is a conversion table containing table values that correspond to tap coefficients and wherein said transversal filter sets tap coefficients for each tap position by referencing that conversion table.

15 7. The data-reproduction apparatus according to claim 2, wherein said transversal filter sets the tap coefficients to zero for the tap positions that are furthest away from said center tap position when the absolute value of said phase-error signal is greater than a specified threshold value.

20 8. The data-reproduction apparatus according to claim 2, wherein said phase-error signal changes in a range that exceeds one cycle of said clock, and where said transversal filter selectively switches the connection of said plurality of taps according to the change in said
25 phase-error signal.

 9. The data-reproduction apparatus according to claim 8, wherein

said transversal filter has n taps, and selectively connects m adjacent taps ($m < n$) according to the change in said phase-error signal.

10. The data-reproduction apparatus according to claim 1, wherein
5 said phase-detection device is provided with a zero-cross-detection device of detecting the zero-cross of said sample-value series.